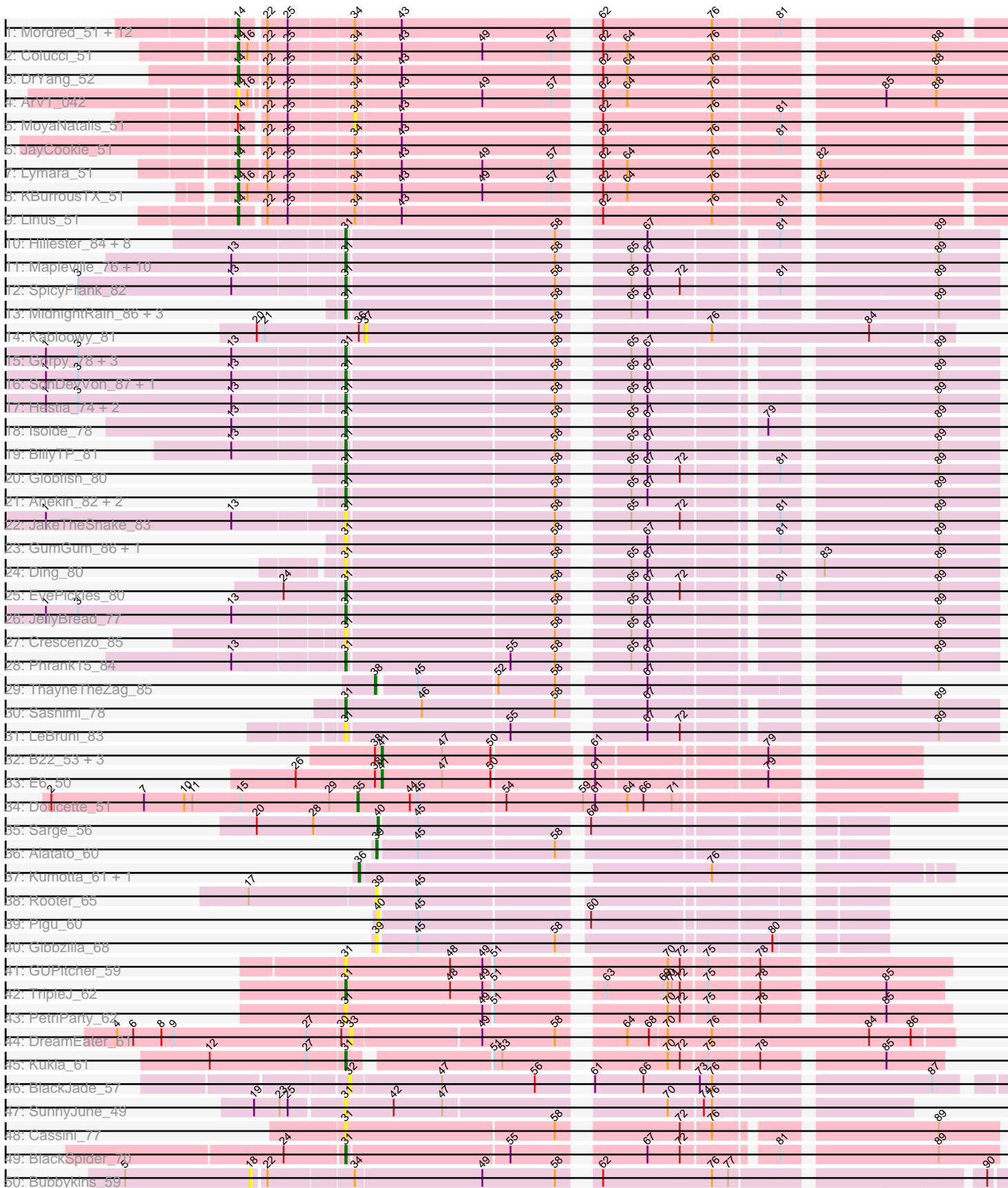


Pham 291025



Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

## Pham 291025 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291025 has 96 members, 32 are drafts.

Phages represented in each track:

- Track 1 : Mordred\_51, RosiePosie\_51, Conboy\_51, JaNo\_51, Chipper1996\_510, PrincessTrina\_51, Tophat\_51, EdgarPoe\_51, Kabreeze\_51, Scavito\_51, Chubster\_51, Chocolat\_51, HumptyDumpty\_51
- Track 2 : Colucci\_51
- Track 3 : DrYang\_52
- Track 4 : ArV1\_042
- Track 5 : MoyaNatalis\_51
- Track 6 : JayCookie\_51
- Track 7 : Lymara\_51
- Track 8 : KBurrousTX\_51
- Track 9 : Linus\_51
- Track 10 : Hillester\_84, DarwinJr\_85, Satrap\_80, BenchScraper\_80, RadFad\_85, BasketStar\_80, Seahorse\_88, Bhageatrice\_84, Auxilium\_78
- Track 11 : Mapleville\_76, YoungHarleezy\_80, MaterMagnus\_80, BlueShadow\_78, MUWow\_83, Raqqa\_78, Raphaella\_81, CookieBear\_79, Lawnathon\_82, Aikyam\_79, Windest\_84
- Track 12 : SpicyFrank\_82
- Track 13 : MidnightRain\_86, CosmicBrownie\_78, AdaS\_76, Lasker\_83
- Track 14 : Kabloowy\_81
- Track 15 : Gorpy\_78, Sakai\_77, NewKitty\_82, Sporco\_82
- Track 16 : SonDevVon\_87, Richie\_83
- Track 17 : Hestia\_74, Faja\_83, Vopal\_82
- Track 18 : Isolde\_78
- Track 19 : BillyTP\_81
- Track 20 : Globfish\_80
- Track 21 : Anekin\_82, Tiff81\_76, Nyilah\_84
- Track 22 : JakeTheSnake\_83
- Track 23 : GumGum\_86, MurphyJoseph\_77
- Track 24 : Ding\_80
- Track 25 : EvePickles\_80
- Track 26 : JellyBread\_77
- Track 27 : Crescenzo\_85
- Track 28 : Phrank15\_84
- Track 29 : ThayneTheZag\_85
- Track 30 : Sashimi\_78
- Track 31 : LeBruni\_83
- Track 32 : B22\_53, Anatole\_45, B3\_47, E1\_45

- Track 33 : E6\_50
- Track 34 : Doucette\_51
- Track 35 : Sarge\_56
- Track 36 : Alatato\_60
- Track 37 : Kumotta\_61, MargaretKali\_57
- Track 38 : Rooter\_65
- Track 39 : Pigu\_60
- Track 40 : Gibbzilla\_68
- Track 41 : GUPitcher\_59
- Track 42 : TripleJ\_62
- Track 43 : PetriParty\_62
- Track 44 : DreamEater\_61
- Track 45 : Kukla\_61
- Track 46 : BlackJade\_57
- Track 47 : SunnyJune\_49
- Track 48 : Cassini\_77
- Track 49 : BlackSpider\_70
- Track 50 : Bubbykins\_59

***Summary of Final Annotations (See graph section above for start numbers):***

The start number called the most often in the published annotations is 31, it was called in 34 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdaS\_76, Aikyam\_79, Anekin\_82, Auxilium\_78, BasketStar\_80, BenchScraper\_80, Bhageatrice\_84, BillyTP\_81, BlackSpider\_70, BlueShadow\_78, Cassini\_77, CookieBear\_79, CosmicBrownie\_78, Crescenzo\_85, DarwinJr\_85, Ding\_80, EvePickles\_80, Faja\_83, GUPitcher\_59, Globfish\_80, Gorpy\_78, GumGum\_86, Hestia\_74, Hillester\_84, Isolde\_78, JakeTheSnake\_83, JellyBread\_77, Kukla\_61, Lasker\_83, Lawnathon\_82, LeBruni\_83, MUWow\_83, Mapleville\_76, MaterMagnus\_80, MidnightRain\_86, MurphyJoseph\_77, NewKitty\_82, Nyilah\_84, PetriParty\_62, Phrank15\_84, RadFad\_85, Raphaella\_81, Raqqa\_78, Richie\_83, Sakai\_77, Sashimi\_78, Satrap\_80, Seahorse\_88, SonDevVon\_87, SpicyFrank\_82, Sporco\_82, SunnyJune\_49, Tiff81\_76, TripleJ\_62, Vopal\_82, Windest\_84, YoungHarleezy\_80,

Genes that have the "Most Annotated" start but do not call it:

- 

Genes that do not have the "Most Annotated" start:

- Alatato\_60, Anatole\_45, ArV1\_042, B22\_53, B3\_47, BlackJade\_57, Bubbykins\_59, Chipper1996\_510, Chocolat\_51, Chubster\_51, Colucci\_51, Conboy\_51, Doucette\_51, DrYang\_52, DreamEater\_61, E1\_45, E6\_50, EdgarPoe\_51, Gibbzilla\_68, HumptyDumpty\_51, JaNo\_51, JayCookie\_51, KBurrousTX\_51, Kabloowy\_81, Kabreeze\_51, Kumotta\_61, Linus\_51, Lymara\_51, MargaretKali\_57, Mordred\_51, MoyaNatalis\_51, Pigu\_60, PrincessTrina\_51, Rooter\_65, RosiePosie\_51, Sarge\_56, Scavito\_51, ThayneTheZag\_85, Tophat\_51,

**Summary by start number:**

Start 14:

- Found in 21 of 96 ( 21.9% ) of genes in pham
- Manual Annotations of this start: 19 of 64
- Called 95.2% of time when present
- Phage (with cluster) where this start called: ArV1\_042 (AR), Chipper1996\_510 (AR), Chocolat\_51 (AR), Chubster\_51 (AR), Colucci\_51 (AR), Conboy\_51 (AR), DrYang\_52 (AR), EdgarPoe\_51 (AR), HumptyDumpty\_51 (AR), JaNo\_51 (AR), JayCookie\_51 (AR), KBurrousTX\_51 (AR), Kabreeze\_51 (AR), Linus\_51 (AR), Lymara\_51 (AR), Mordred\_51 (AR), PrincessTrina\_51 (AR), RosiePosie\_51 (AR), Scavito\_51 (AR), Tophat\_51 (AR),

Start 18:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bubbykins\_59 (UNK),

Start 31:

- Found in 57 of 96 ( 59.4% ) of genes in pham
- Manual Annotations of this start: 34 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AdaS\_76 (AY), Aikyam\_79 (AY), Anekin\_82 (AY), Auxilium\_78 (AY), BasketStar\_80 (AY), BenchScraper\_80 (AY), Bhageatrice\_84 (AY), BillyTP\_81 (AY), BlackSpider\_70 (FN), BlueShadow\_78 (AY), Cassini\_77 (FN), CookieBear\_79 (AY), CosmicBrownie\_78 (AY), Crescenzo\_85 (AY), DarwinJr\_85 (AY), Ding\_80 (AY), EvePickles\_80 (AY), Faja\_83 (AY), GUPitcher\_59 (FJ), Globfish\_80 (AY), Gorpy\_78 (AY), GumGum\_86 (AY), Hestia\_74 (AY), Hillester\_84 (AY), Isolde\_78 (AY), JakeTheSnake\_83 (AY), JellyBread\_77 (AY), Kukla\_61 (FJ), Lasker\_83 (AY), Lawnathon\_82 (AY), LeBruni\_83 (AY), MUWow\_83 (AY), Mapleville\_76 (AY), MaterMagnus\_80 (AY), MidnightRain\_86 (AY), MurphyJoseph\_77 (AY), NewKitty\_82 (AY), Nyilah\_84 (AY), PetriParty\_62 (FJ), Phrank15\_84 (AY), RadFad\_85 (AY), Raphaella\_81 (AY), Raqqa\_78 (AY), Richie\_83 (AY), Sakai\_77 (AY), Sashimi\_78 (AY), Satrap\_80 (AY), Seahorse\_88 (AY), SonDevVon\_87 (AY), SpicyFrank\_82 (AY), Sporco\_82 (AY), SunnyJune\_49 (FL), Tiff81\_76 (AY), TripleJ\_62 (FJ), Vopal\_82 (AY), Windest\_84 (AY), YoungHarleezy\_80 (AY),

Start 32:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlackJade\_57 (FL),

Start 33:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DreamEater\_61 (FJ),

Start 34:

- Found in 22 of 96 ( 22.9% ) of genes in pham
- No Manual Annotations of this start.

- Called 4.5% of time when present
- Phage (with cluster) where this start called: MoyaNatalis\_51 (AR),

Start 35:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Doucette\_51 (BW),

Start 36:

- Found in 3 of 96 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Kumotta\_61 (FB), MargaretKali\_57 (FB),

Start 37:

- Found in 1 of 96 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kabloowy\_81 (AY),

Start 38:

- Found in 6 of 96 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 16.7% of time when present
- Phage (with cluster) where this start called: ThayneTheZag\_85 (AY),

Start 39:

- Found in 3 of 96 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alatato\_60 (FB), Gibbzilla\_68 (FB), Rooter\_65 (FB),

Start 40:

- Found in 2 of 96 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pigu\_60 (FB), Sarge\_56 (FB),

Start 41:

- Found in 5 of 96 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 5 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anatole\_45 (BV), B22\_53 (BW), B3\_47 (BV), E1\_45 (BV), E6\_50 (BW),

**Summary by clusters:**

There are 9 clusters represented in this pham: BV, BW, FB, AR, AY, FJ, UNK, FL, FN,

Info for manual annotations of cluster AR:

- Start number 14 was manually annotated 19 times for cluster AR.

Info for manual annotations of cluster AY:

- Start number 31 was manually annotated 31 times for cluster AY.
- Start number 38 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BV:

- Start number 41 was manually annotated 3 times for cluster BV.

Info for manual annotations of cluster BW:

- Start number 35 was manually annotated 1 time for cluster BW.
- Start number 41 was manually annotated 2 times for cluster BW.

Info for manual annotations of cluster FB:

- Start number 36 was manually annotated 2 times for cluster FB.
- Start number 39 was manually annotated 1 time for cluster FB.
- Start number 40 was manually annotated 1 time for cluster FB.

Info for manual annotations of cluster FJ:

- Start number 31 was manually annotated 2 times for cluster FJ.

Info for manual annotations of cluster FN:

- Start number 31 was manually annotated 1 time for cluster FN.

### ***Gene Information:***

Gene: AdaS\_76 Start: 43281, Stop: 43715, Start Num: 31

Candidate Starts for AdaS\_76:

(Start: 31 @43281 has 34 MA's), (58, 43431), (65, 43470), (67, 43482), (89, 43671),

Gene: Aikyam\_79 Start: 43854, Stop: 44288, Start Num: 31

Candidate Starts for Aikyam\_79:

(13, 43776), (Start: 31 @43854 has 34 MA's), (58, 44004), (65, 44043), (67, 44055), (89, 44244),

Gene: Alatato\_60 Start: 34727, Stop: 35062, Start Num: 39

Candidate Starts for Alatato\_60:

(Start: 39 @34727 has 1 MA's), (45, 34754), (58, 34853),

Gene: Anatole\_45 Start: 30233, Stop: 30598, Start Num: 41

Candidate Starts for Anatole\_45:

(Start: 38 @30230 has 1 MA's), (Start: 41 @30233 has 5 MA's), (47, 30278), (50, 30314), (61, 30380), (79, 30497),

Gene: Anekin\_82 Start: 46598, Stop: 47032, Start Num: 31

Candidate Starts for Anekin\_82:

(Start: 31 @46598 has 34 MA's), (58, 46748), (65, 46787), (67, 46799), (89, 46988),

Gene: ArV1\_042 Start: 37634, Stop: 38161, Start Num: 14

Candidate Starts for ArV1\_042:

(Start: 14 @37634 has 19 MA's), (16, 37640), (22, 37649), (25, 37664), (34, 37709), (43, 37742), (49, 37802), (57, 37853), (62, 37874), (64, 37892), (76, 37955), (85, 38069), (88, 38105),

Gene: Auxilium\_78 Start: 43540, Stop: 43974, Start Num: 31

Candidate Starts for Auxilium\_78:

(Start: 31 @43540 has 34 MA's), (58, 43690), (67, 43741), (81, 43825), (89, 43930),

Gene: B22\_53 Start: 33661, Stop: 34026, Start Num: 41

Candidate Starts for B22\_53:

(Start: 38 @33658 has 1 MA's), (Start: 41 @33661 has 5 MA's), (47, 33706), (50, 33742), (61, 33808), (79, 33925),

Gene: B3\_47 Start: 30896, Stop: 31261, Start Num: 41

Candidate Starts for B3\_47:

(Start: 38 @30893 has 1 MA's), (Start: 41 @30896 has 5 MA's), (47, 30941), (50, 30977), (61, 31043), (79, 31160),

Gene: BasketStar\_80 Start: 46212, Stop: 46646, Start Num: 31

Candidate Starts for BasketStar\_80:

(Start: 31 @46212 has 34 MA's), (58, 46362), (67, 46413), (81, 46497), (89, 46602),

Gene: BenchScraper\_80 Start: 44453, Stop: 44887, Start Num: 31

Candidate Starts for BenchScraper\_80:

(Start: 31 @44453 has 34 MA's), (58, 44603), (67, 44654), (81, 44738), (89, 44843),

Gene: Bhageatrice\_84 Start: 48381, Stop: 48815, Start Num: 31

Candidate Starts for Bhageatrice\_84:

(Start: 31 @48381 has 34 MA's), (58, 48531), (67, 48582), (81, 48666), (89, 48771),

Gene: BillyTP\_81 Start: 46444, Stop: 46878, Start Num: 31

Candidate Starts for BillyTP\_81:

(13, 46366), (Start: 31 @46444 has 34 MA's), (58, 46594), (65, 46633), (67, 46645), (89, 46834),

Gene: BlackJade\_57 Start: 36087, Stop: 36527, Start Num: 32

Candidate Starts for BlackJade\_57:

(32, 36087), (47, 36153), (56, 36222), (61, 36249), (66, 36285), (73, 36327), (76, 36336), (87, 36483),

Gene: BlackSpider\_70 Start: 43372, Stop: 43806, Start Num: 31

Candidate Starts for BlackSpider\_70:

(24, 43330), (Start: 31 @43372 has 34 MA's), (55, 43489), (67, 43573), (72, 43597), (81, 43657), (89, 43762),

Gene: BlueShadow\_78 Start: 45699, Stop: 46133, Start Num: 31

Candidate Starts for BlueShadow\_78:

(13, 45621), (Start: 31 @45699 has 34 MA's), (58, 45849), (65, 45888), (67, 45900), (89, 46089),

Gene: Bubbykins\_59 Start: 44007, Stop: 44516, Start Num: 18

Candidate Starts for Bubbykins\_59:

(5, 43914), (18, 44007), (22, 44016), (34, 44076), (49, 44169), (58, 44223), (62, 44241), (76, 44322), (77, 44334), (90, 44502),

Gene: Cassini\_77 Start: 45232, Stop: 45669, Start Num: 31

Candidate Starts for Cassini\_77:

(Start: 31 @45232 has 34 MA's), (58, 45385), (72, 45460), (76, 45481), (89, 45625),

Gene: Chipper1996\_510 Start: 39219, Stop: 39737, Start Num: 14

Candidate Starts for Chipper1996\_510:

(Start: 14 @39219 has 19 MA's), (22, 39234), (25, 39249), (34, 39294), (43, 39327), (62, 39459), (76, 39540), (81, 39588),

Gene: Chocolat\_51 Start: 39199, Stop: 39717, Start Num: 14

Candidate Starts for Chocolat\_51:

(Start: 14 @39199 has 19 MA's), (22, 39214), (25, 39229), (34, 39274), (43, 39307), (62, 39439), (76, 39520), (81, 39568),

Gene: Chubster\_51 Start: 39119, Stop: 39637, Start Num: 14

Candidate Starts for Chubster\_51:

(Start: 14 @39119 has 19 MA's), (22, 39134), (25, 39149), (34, 39194), (43, 39227), (62, 39359), (76, 39440), (81, 39488),

Gene: Colucci\_51 Start: 38917, Stop: 39447, Start Num: 14

Candidate Starts for Colucci\_51:

(Start: 14 @38917 has 19 MA's), (16, 38923), (22, 38935), (25, 38950), (34, 38995), (43, 39028), (49, 39088), (57, 39139), (62, 39160), (64, 39178), (76, 39241), (88, 39391),

Gene: Conboy\_51 Start: 39347, Stop: 39865, Start Num: 14

Candidate Starts for Conboy\_51:

(Start: 14 @39347 has 19 MA's), (22, 39362), (25, 39377), (34, 39422), (43, 39455), (62, 39587), (76, 39668), (81, 39716),

Gene: CookieBear\_79 Start: 44928, Stop: 45362, Start Num: 31

Candidate Starts for CookieBear\_79:

(13, 44850), (Start: 31 @44928 has 34 MA's), (58, 45078), (65, 45117), (67, 45129), (89, 45318),

Gene: CosmicBrownie\_78 Start: 44683, Stop: 45117, Start Num: 31

Candidate Starts for CosmicBrownie\_78:

(Start: 31 @44683 has 34 MA's), (58, 44833), (65, 44872), (67, 44884), (89, 45073),

Gene: Crescenzo\_85 Start: 47866, Stop: 48300, Start Num: 31

Candidate Starts for Crescenzo\_85:

(Start: 31 @47866 has 34 MA's), (58, 48016), (65, 48055), (67, 48067), (89, 48256),

Gene: DarwinJr\_85 Start: 47821, Stop: 48255, Start Num: 31

Candidate Starts for DarwinJr\_85:

(Start: 31 @47821 has 34 MA's), (58, 47971), (67, 48022), (81, 48106), (89, 48211),

Gene: Ding\_80 Start: 45228, Stop: 45662, Start Num: 31

Candidate Starts for Ding\_80:

(Start: 31 @45228 has 34 MA's), (58, 45378), (65, 45417), (67, 45429), (83, 45534), (89, 45618),

Gene: Doucette\_51 Start: 33311, Stop: 33733, Start Num: 35

Candidate Starts for Doucette\_51:

(2, 33083), (7, 33152), (10, 33182), (11, 33188), (15, 33224), (29, 33290), (Start: 35 @33311 has 1 MA's), (44, 33350), (45, 33356), (54, 33419), (59, 33476), (61, 33485), (64, 33509), (66, 33521), (71, 33542),

Gene: DrYang\_52 Start: 41254, Stop: 41784, Start Num: 14

Candidate Starts for DrYang\_52:

(Start: 14 @41254 has 19 MA's), (22, 41272), (25, 41287), (34, 41332), (43, 41365), (62, 41497), (64, 41515), (76, 41578), (88, 41728),

Gene: DreamEater\_61 Start: 37911, Stop: 38327, Start Num: 33

Candidate Starts for DreamEater\_61:

(4, 37740), (6, 37752), (8, 37773), (9, 37782), (27, 37881), (30, 37905), (33, 37911), (49, 38004), (58, 38058), (64, 38094), (68, 38109), (70, 38121), (76, 38154), (84, 38268), (86, 38298),

Gene: E1\_45 Start: 30233, Stop: 30598, Start Num: 41

Candidate Starts for E1\_45:

(Start: 38 @30230 has 1 MA's), (Start: 41 @30233 has 5 MA's), (47, 30278), (50, 30314), (61, 30380), (79, 30497),

Gene: E6\_50 Start: 33161, Stop: 33526, Start Num: 41

Candidate Starts for E6\_50:

(26, 33101), (Start: 38 @33158 has 1 MA's), (Start: 41 @33161 has 5 MA's), (47, 33206), (50, 33242), (61, 33308), (79, 33425),

Gene: EdgarPoe\_51 Start: 39347, Stop: 39865, Start Num: 14

Candidate Starts for EdgarPoe\_51:

(Start: 14 @39347 has 19 MA's), (22, 39362), (25, 39377), (34, 39422), (43, 39455), (62, 39587), (76, 39668), (81, 39716),

Gene: EvePickles\_80 Start: 46710, Stop: 47144, Start Num: 31

Candidate Starts for EvePickles\_80:

(24, 46668), (Start: 31 @46710 has 34 MA's), (58, 46860), (65, 46899), (67, 46911), (72, 46935), (81, 46995), (89, 47100),

Gene: Faja\_83 Start: 46967, Stop: 47401, Start Num: 31

Candidate Starts for Faja\_83:

(1, 46754), (3, 46778), (13, 46892), (Start: 31 @46967 has 34 MA's), (58, 47117), (65, 47156), (67, 47168), (89, 47357),

Gene: GUPitcher\_59 Start: 38018, Stop: 38428, Start Num: 31

Candidate Starts for GUPitcher\_59:

(Start: 31 @38018 has 34 MA's), (48, 38096), (49, 38120), (51, 38126), (70, 38237), (72, 38246), (75, 38264), (78, 38300),

Gene: Gibbzilla\_68 Start: 35366, Stop: 35701, Start Num: 39

Candidate Starts for Gibbzilla\_68:

(Start: 39 @35366 has 1 MA's), (45, 35393), (58, 35492), (80, 35633),

Gene: Globfish\_80 Start: 44618, Stop: 45055, Start Num: 31

Candidate Starts for Globfish\_80:

(Start: 31 @44618 has 34 MA's), (58, 44771), (65, 44810), (67, 44822), (72, 44846), (81, 44906), (89, 45011),

Gene: Gorpy\_78 Start: 46271, Stop: 46705, Start Num: 31

Candidate Starts for Gorpy\_78:

(1, 46055), (3, 46079), (13, 46193), (Start: 31 @46271 has 34 MA's), (58, 46421), (65, 46460), (67, 46472), (89, 46661),

Gene: GumGum\_86 Start: 46484, Stop: 46918, Start Num: 31

Candidate Starts for GumGum\_86:

(Start: 31 @46484 has 34 MA's), (58, 46634), (67, 46685), (81, 46769), (89, 46874),

Gene: Hestia\_74 Start: 43190, Stop: 43624, Start Num: 31

Candidate Starts for Hestia\_74:

(1, 42977), (3, 43001), (13, 43115), (Start: 31 @43190 has 34 MA's), (58, 43340), (65, 43379), (67, 43391), (89, 43580),

Gene: Hillester\_84 Start: 46339, Stop: 46773, Start Num: 31

Candidate Starts for Hillester\_84:

(Start: 31 @46339 has 34 MA's), (58, 46489), (67, 46540), (81, 46624), (89, 46729),

Gene: HumptyDumpty\_51 Start: 39217, Stop: 39735, Start Num: 14

Candidate Starts for HumptyDumpty\_51:

(Start: 14 @39217 has 19 MA's), (22, 39232), (25, 39247), (34, 39292), (43, 39325), (62, 39457), (76, 39538), (81, 39586),

Gene: Isolde\_78 Start: 45144, Stop: 45578, Start Num: 31

Candidate Starts for Isolde\_78:

(13, 45066), (Start: 31 @45144 has 34 MA's), (58, 45294), (65, 45333), (67, 45345), (79, 45420), (89, 45534),

Gene: JaNo\_51 Start: 39217, Stop: 39735, Start Num: 14

Candidate Starts for JaNo\_51:

(Start: 14 @39217 has 19 MA's), (22, 39232), (25, 39247), (34, 39292), (43, 39325), (62, 39457), (76, 39538), (81, 39586),

Gene: JakeTheSnake\_83 Start: 48002, Stop: 48436, Start Num: 31

Candidate Starts for JakeTheSnake\_83:

(1, 47786), (13, 47924), (Start: 31 @48002 has 34 MA's), (58, 48152), (65, 48191), (72, 48227), (81, 48287), (89, 48392),

Gene: JayCookie\_51 Start: 39354, Stop: 39872, Start Num: 14

Candidate Starts for JayCookie\_51:

(Start: 14 @39354 has 19 MA's), (22, 39369), (25, 39384), (34, 39429), (43, 39462), (62, 39594), (76, 39675), (81, 39723),

Gene: JellyBread\_77 Start: 45355, Stop: 45789, Start Num: 31

Candidate Starts for JellyBread\_77:

(1, 45139), (3, 45163), (13, 45277), (Start: 31 @45355 has 34 MA's), (58, 45505), (65, 45544), (67, 45556), (89, 45745),

Gene: KBurrousTX\_51 Start: 40442, Stop: 40966, Start Num: 14

Candidate Starts for KBurrousTX\_51:

(Start: 14 @40442 has 19 MA's), (16, 40448), (22, 40463), (25, 40478), (34, 40523), (43, 40556), (49, 40616), (57, 40667), (62, 40688), (64, 40706), (76, 40769), (82, 40835),

Gene: Kabloowy\_81 Start: 46747, Stop: 47157, Start Num: 37

Candidate Starts for Kabloowy\_81:

(20, 46672), (21, 46678), (Start: 36 @46744 has 2 MA's), (37, 46747), (58, 46888), (76, 46987), (84, 47101),

Gene: Kabreeze\_51 Start: 39217, Stop: 39735, Start Num: 14

Candidate Starts for Kabreeze\_51:

(Start: 14 @39217 has 19 MA's), (22, 39232), (25, 39247), (34, 39292), (43, 39325), (62, 39457), (76, 39538), (81, 39586),

Gene: Kukla\_61 Start: 37872, Stop: 38264, Start Num: 31

Candidate Starts for Kukla\_61:

(12, 37773), (27, 37845), (Start: 31 @37872 has 34 MA's), (51, 37968), (53, 37974), (70, 38079), (72, 38088), (75, 38106), (78, 38142), (85, 38223),

Gene: Kumotta\_61 Start: 34491, Stop: 34892, Start Num: 36

Candidate Starts for Kumotta\_61:

(Start: 36 @34491 has 2 MA's), (76, 34734),

Gene: Lasker\_83 Start: 46923, Stop: 47357, Start Num: 31

Candidate Starts for Lasker\_83:

(Start: 31 @46923 has 34 MA's), (58, 47073), (65, 47112), (67, 47124), (89, 47313),

Gene: Lawnathon\_82 Start: 45556, Stop: 45990, Start Num: 31

Candidate Starts for Lawnathon\_82:

(13, 45478), (Start: 31 @45556 has 34 MA's), (58, 45706), (65, 45745), (67, 45757), (89, 45946),

Gene: LeBruni\_83 Start: 45351, Stop: 45785, Start Num: 31

Candidate Starts for LeBruni\_83:

(Start: 31 @45351 has 34 MA's), (55, 45468), (67, 45552), (72, 45576), (89, 45741),

Gene: Linus\_51 Start: 39340, Stop: 39858, Start Num: 14

Candidate Starts for Linus\_51:

(Start: 14 @39340 has 19 MA's), (22, 39355), (25, 39370), (34, 39415), (43, 39448), (62, 39580), (76, 39661), (81, 39709),

Gene: Lymara\_51 Start: 39161, Stop: 39691, Start Num: 14

Candidate Starts for Lymara\_51:

(Start: 14 @39161 has 19 MA's), (22, 39179), (25, 39194), (34, 39239), (43, 39272), (49, 39332), (57, 39383), (62, 39404), (64, 39422), (76, 39485), (82, 39551),

Gene: MUWow\_83 Start: 47292, Stop: 47726, Start Num: 31

Candidate Starts for MUWow\_83:

(13, 47214), (Start: 31 @47292 has 34 MA's), (58, 47442), (65, 47481), (67, 47493), (89, 47682),

Gene: Mapleville\_76 Start: 44872, Stop: 45306, Start Num: 31

Candidate Starts for Mapleville\_76:

(13, 44794), (Start: 31 @44872 has 34 MA's), (58, 45022), (65, 45061), (67, 45073), (89, 45262),

Gene: MargaretKali\_57 Start: 33109, Stop: 33510, Start Num: 36

Candidate Starts for MargaretKali\_57:

(Start: 36 @33109 has 2 MA's), (76, 33352),

Gene: MaterMagnus\_80 Start: 46026, Stop: 46460, Start Num: 31

Candidate Starts for MaterMagnus\_80:

(13, 45948), (Start: 31 @46026 has 34 MA's), (58, 46176), (65, 46215), (67, 46227), (89, 46416),

Gene: MidnightRain\_86 Start: 47232, Stop: 47666, Start Num: 31  
Candidate Starts for MidnightRain\_86:  
(Start: 31 @47232 has 34 MA's), (58, 47382), (65, 47421), (67, 47433), (89, 47622),

Gene: Mordred\_51 Start: 39217, Stop: 39735, Start Num: 14  
Candidate Starts for Mordred\_51:  
(Start: 14 @39217 has 19 MA's), (22, 39232), (25, 39247), (34, 39292), (43, 39325), (62, 39457), (76, 39538), (81, 39586),

Gene: MoyaNatalis\_51 Start: 39273, Stop: 39716, Start Num: 34  
Candidate Starts for MoyaNatalis\_51:  
(Start: 14 @39198 has 19 MA's), (22, 39213), (25, 39228), (34, 39273), (43, 39306), (62, 39438), (76, 39519), (81, 39567),

Gene: MurphyJoseph\_77 Start: 44408, Stop: 44842, Start Num: 31  
Candidate Starts for MurphyJoseph\_77:  
(Start: 31 @44408 has 34 MA's), (58, 44558), (67, 44609), (81, 44693), (89, 44798),

Gene: NewKitty\_82 Start: 47134, Stop: 47568, Start Num: 31  
Candidate Starts for NewKitty\_82:  
(1, 46921), (3, 46945), (13, 47059), (Start: 31 @47134 has 34 MA's), (58, 47284), (65, 47323), (67, 47335), (89, 47524),

Gene: Nyilah\_84 Start: 45704, Stop: 46138, Start Num: 31  
Candidate Starts for Nyilah\_84:  
(Start: 31 @45704 has 34 MA's), (58, 45854), (65, 45893), (67, 45905), (89, 46094),

Gene: PetriParty\_62 Start: 37816, Stop: 38226, Start Num: 31  
Candidate Starts for PetriParty\_62:  
(Start: 31 @37816 has 34 MA's), (49, 37918), (51, 37924), (70, 38035), (72, 38044), (75, 38062), (78, 38098), (85, 38179),

Gene: Phrank15\_84 Start: 46287, Stop: 46721, Start Num: 31  
Candidate Starts for Phrank15\_84:  
(13, 46209), (Start: 31 @46287 has 34 MA's), (55, 46404), (58, 46437), (65, 46476), (67, 46488), (89, 46677),

Gene: Pigu\_60 Start: 32856, Stop: 33191, Start Num: 40  
Candidate Starts for Pigu\_60:  
(Start: 40 @32856 has 1 MA's), (45, 32883), (60, 32997),

Gene: PrincessTrina\_51 Start: 39341, Stop: 39859, Start Num: 14  
Candidate Starts for PrincessTrina\_51:  
(Start: 14 @39341 has 19 MA's), (22, 39356), (25, 39371), (34, 39416), (43, 39449), (62, 39581), (76, 39662), (81, 39710),

Gene: RadFad\_85 Start: 46339, Stop: 46773, Start Num: 31  
Candidate Starts for RadFad\_85:  
(Start: 31 @46339 has 34 MA's), (58, 46489), (67, 46540), (81, 46624), (89, 46729),

Gene: Raphaella\_81 Start: 45261, Stop: 45695, Start Num: 31  
Candidate Starts for Raphaella\_81:  
(13, 45183), (Start: 31 @45261 has 34 MA's), (58, 45411), (65, 45450), (67, 45462), (89, 45651),

Gene: Raqqa\_78 Start: 45834, Stop: 46268, Start Num: 31

Candidate Starts for Raqqa\_78:

(13, 45756), (Start: 31 @45834 has 34 MA's), (58, 45984), (65, 46023), (67, 46035), (89, 46224),

Gene: Richie\_83 Start: 47024, Stop: 47458, Start Num: 31

Candidate Starts for Richie\_83:

(1, 46808), (3, 46832), (13, 46946), (Start: 31 @47024 has 34 MA's), (58, 47174), (65, 47213), (67, 47225), (89, 47414),

Gene: Rooter\_65 Start: 34611, Stop: 34946, Start Num: 39

Candidate Starts for Rooter\_65:

(17, 34518), (Start: 39 @34611 has 1 MA's), (45, 34638),

Gene: RosiePosie\_51 Start: 39220, Stop: 39738, Start Num: 14

Candidate Starts for RosiePosie\_51:

(Start: 14 @39220 has 19 MA's), (22, 39235), (25, 39250), (34, 39295), (43, 39328), (62, 39460), (76, 39541), (81, 39589),

Gene: Sakai\_77 Start: 44982, Stop: 45416, Start Num: 31

Candidate Starts for Sakai\_77:

(1, 44766), (3, 44790), (13, 44904), (Start: 31 @44982 has 34 MA's), (58, 45132), (65, 45171), (67, 45183), (89, 45372),

Gene: Sarge\_56 Start: 32052, Stop: 32387, Start Num: 40

Candidate Starts for Sarge\_56:

(20, 31962), (28, 32004), (Start: 40 @32052 has 1 MA's), (45, 32079), (60, 32193),

Gene: Sashimi\_78 Start: 45527, Stop: 45964, Start Num: 31

Candidate Starts for Sashimi\_78:

(Start: 31 @45527 has 34 MA's), (46, 45584), (58, 45680), (67, 45731), (89, 45920),

Gene: Satrap\_80 Start: 45800, Stop: 46234, Start Num: 31

Candidate Starts for Satrap\_80:

(Start: 31 @45800 has 34 MA's), (58, 45950), (67, 46001), (81, 46085), (89, 46190),

Gene: Scavito\_51 Start: 39218, Stop: 39736, Start Num: 14

Candidate Starts for Scavito\_51:

(Start: 14 @39218 has 19 MA's), (22, 39233), (25, 39248), (34, 39293), (43, 39326), (62, 39458), (76, 39539), (81, 39587),

Gene: Seahorse\_88 Start: 50801, Stop: 51235, Start Num: 31

Candidate Starts for Seahorse\_88:

(Start: 31 @50801 has 34 MA's), (58, 50951), (67, 51002), (81, 51086), (89, 51191),

Gene: SonDevVon\_87 Start: 45926, Stop: 46360, Start Num: 31

Candidate Starts for SonDevVon\_87:

(1, 45710), (3, 45734), (13, 45848), (Start: 31 @45926 has 34 MA's), (58, 46076), (65, 46115), (67, 46127), (89, 46316),

Gene: SpicyFrank\_82 Start: 45513, Stop: 45947, Start Num: 31

Candidate Starts for SpicyFrank\_82:

(3, 45321), (13, 45435), (Start: 31 @45513 has 34 MA's), (58, 45663), (65, 45702), (67, 45714), (72, 45738), (81, 45798), (89, 45903),

Gene: Sporco\_82 Start: 46941, Stop: 47375, Start Num: 31

Candidate Starts for Sporco\_82:

(1, 46725), (3, 46749), (13, 46863), (Start: 31 @46941 has 34 MA's), (58, 47091), (65, 47130), (67, 47142), (89, 47331),

Gene: SunnyJune\_49 Start: 34283, Stop: 34666, Start Num: 31

Candidate Starts for SunnyJune\_49:

(19, 34220), (23, 34238), (25, 34244), (Start: 31 @34283 has 34 MA's), (42, 34319), (47, 34355), (70, 34502), (74, 34526), (76, 34532),

Gene: ThayneTheZag\_85 Start: 46273, Stop: 46623, Start Num: 38

Candidate Starts for ThayneTheZag\_85:

(Start: 38 @46273 has 1 MA's), (45, 46300), (52, 46357), (58, 46399), (67, 46456),

Gene: Tiff81\_76 Start: 44402, Stop: 44836, Start Num: 31

Candidate Starts for Tiff81\_76:

(Start: 31 @44402 has 34 MA's), (58, 44552), (65, 44591), (67, 44603), (89, 44792),

Gene: Tophat\_51 Start: 39219, Stop: 39737, Start Num: 14

Candidate Starts for Tophat\_51:

(Start: 14 @39219 has 19 MA's), (22, 39234), (25, 39249), (34, 39294), (43, 39327), (62, 39459), (76, 39540), (81, 39588),

Gene: TripleJ\_62 Start: 38075, Stop: 38479, Start Num: 31

Candidate Starts for TripleJ\_62:

(Start: 31 @38075 has 34 MA's), (48, 38153), (49, 38177), (51, 38183), (63, 38249), (69, 38291), (70, 38294), (71, 38297), (72, 38303), (75, 38321), (78, 38357), (85, 38438),

Gene: Vopal\_82 Start: 47327, Stop: 47761, Start Num: 31

Candidate Starts for Vopal\_82:

(1, 47114), (3, 47138), (13, 47252), (Start: 31 @47327 has 34 MA's), (58, 47477), (65, 47516), (67, 47528), (89, 47717),

Gene: Windest\_84 Start: 44509, Stop: 44943, Start Num: 31

Candidate Starts for Windest\_84:

(13, 44431), (Start: 31 @44509 has 34 MA's), (58, 44659), (65, 44698), (67, 44710), (89, 44899),

Gene: YoungHarleezy\_80 Start: 45534, Stop: 45968, Start Num: 31

Candidate Starts for YoungHarleezy\_80:

(13, 45456), (Start: 31 @45534 has 34 MA's), (58, 45684), (65, 45723), (67, 45735), (89, 45924),